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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,820	09/24/2003	Chung-Hsing Tzu	AMKOR-090A	5197
7663	7590	10/08/2004	EXAMINER	
STETINA BRUNDA GARRED & BRUCKER			HUYNH, ANDY	
75 ENTERPRISE, SUITE 250			ART UNIT	
ALISO VIEJO, CA 92656			PAPER NUMBER	
			2818	

DATE MAILED: 10/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/669,820

Applicant(s)

TZU ET AL.

Examiner

Andy Huynh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-20 is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 01/02/04, 01/05/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claims **1-20** are pending in this application is acknowledged.

Information Disclosure Statement

This office acknowledges receipt of the following items from the applicant: Information Disclosure Statement (IDS) filed on 01/02/2004 and 01/05/2004, made of record as Paper No. 100504. The references cited on the PTOL 1449 form have been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **1-9 and 11-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn et al. (USP: 6,281,568 hereinafter referred to as "Glenn") in view of Hung et al. (USP: 6,476,469 hereinafter referred to as "Hung"), Applicant's submitted prior arts (ASPPs).

Regarding claims **1-3**, Glenn discloses in Figs. 2 and 5, and the corresponding texts as set forth in column 4, line 25-column 9, line 40, a semiconductor package (50), comprises:
a die pad (22) defining opposed top and bottom surfaces and a peripheral edge;

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a plurality of leads (30) extending at least partially about the peripheral edge of the die pad in spaced relation thereto;

a semiconductor die (52) attached to the top surface of the die pad and electrically connected to at least one of the leads; and

a package body (51) encapsulating the die pad, the leads and the semiconductor die such that at least portions of the leads are exposed in the package body.

Glenn fails to teach a semiconductor package comprises a plurality of support feet attached to the peripheral edge of the die pad and extending downwardly relative to the bottom surface thereof, wherein the support feet extend generally perpendicularly relative to the bottom surface of the die pad, and each of the support feet defines a pointed distal end.

Hung teaches in Figs. 2 and 3D and the corresponding texts as set forth in column 3, line 51-column 4, line 59, the package comprises a plurality of support feet/supporters (220) attached to the peripheral edge of the die pad (204) and extending downwardly relative to the bottom surface thereof, wherein the support feet/the supporters extend generally perpendicularly relative to the bottom surface of the die pad, and each of the support feet/the supporters defines a pointed distal end.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form the package comprising a plurality of support feet/supporters (220) attached to the peripheral edge of the die pad (204) and extending downwardly relative to the bottom surface wherein the support feet/the supporters extend generally perpendicularly relative to the bottom surface of the die pad, and each of the support feet/the supporters defines a pointed distal end, as taught by Hung to arrive the claimed limitations in order to increase the overall contact area

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between the die pad and the plastic material and the die pad can dislocate less readily (col. 4, lines 33-35, lines 42-44).

Regarding claim **4**, Glenn discloses in Figs. 2 and 5 the semiconductor package wherein each of the leads defines an inner lead portion which is covered by the package body and an outer lead portion which protrudes from the package body; the die pad and the inner lead portions of the leads extend in generally co-planar relation to each other along a common die pad plane; and the outer lead portions of the leads extend in generally co-planar relation to each other along a common lead plane which is disposed in spaced, generally parallel relation to the die pad plane (col. 9, lines 30-40).

Regarding claims **5 and 12**, Glenn discloses in Figs. 2 and 5 the semiconductor package/the leadframe wherein the die pad has a generally rectangular configuration defining an opposed pair of longitudinal sides and an opposed pair of lateral sides, except the support feet are attached to each of the longitudinal and lateral sides of the die pad. Hung teaches in Fig. 2 the semiconductor package/the leadframe wherein the support feet/the supporters are attached to each of the longitudinal and lateral sides of the die pad (204). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form the package/the leadframe comprising the support feet/the supporters are attached to each of the longitudinal and lateral sides of the die pad, as taught by Hung to arrive the claimed limitations in order to increase the overall contact area between the die pad and the plastic material and the die pad can dislocate less readily (col. 4, lines 33-35, lines 42-44).

Regarding claims **6 and 13**, Glenn and Hung disclose the claimed limitations except for the semiconductor package wherein the die pad has a generally quadrangular configuration

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defining four corner regions, and the support feet are attached to respective ones of the corner regions defined by the die pad. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form the die pad has a generally quadrangular configuration defining four corner regions, and the support feet are attached to respective ones of the corner regions defined by the die pad, since such a modification would have involved a mere change in the shape of the die pad. A change in shape is generally recognized as being within the level of ordinary skill in the art.

Regarding claim 7, Glenn discloses in Figs. 2 and 5 the semiconductor package further comprises a pair of inner support bars/connectors (28) attached to and extending from the peripheral edge of the die pad, the inner support bars being at least partially covered by the package body.

Regarding claim 8, Glenn discloses in Figs. 2 and 5 the semiconductor package wherein the semiconductor die is electrically connected to at least one of the leads via a conductive wire (54).

Regarding claims 9 and 11, Glenn discloses in Figs. 2 and 5, and the corresponding texts as set forth in column 4, line 25-column 9, line 40, A leadframe (20) for use in a semiconductor package (50), the leadframe comprises:

- a die pad (22) defining opposed top and bottom surfaces and a peripheral edge;

- a plurality of leads (30) extending at least partially about the peripheral edge of the die pad in spaced relation thereto;

- at least one outer support bar/a central dam bar (29) attached to and extending between the leads in a manner interconnecting the leads to each other; and

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a pair of inner support bars/connectors (28) attached to and extending between the outer support bar and the peripheral edge of the die pad.

Glenn fails to teach the leadframe comprises a plurality of support feet attached to the peripheral edge of the die pad and extending generally perpendicularly therefrom, and wherein each of the support feet defines a pointed distal end.

Hung teaches in Figs. 2 and 3D and the corresponding texts as set forth in column 3, line 51-column 4, line 59, the leadframe (202) comprises a plurality of support feet/supporters (220) attached to the peripheral edge of the die pad (204) and extending generally perpendicularly therefrom, and wherein each of the support feet/the supporters defines a pointed distal end.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form the leadframe comprising a plurality of support feet/supporters (220) attached to the peripheral edge of the die pad (204) and extending generally perpendicularly therefrom, and wherein each of the support feet/the supporters defines a pointed distal end, as taught by Hung to arrive the claimed limitations in order to increase the overall contact area between the die pad and the plastic material and the die pad can dislocate less readily (col. 4, lines 33-35, lines 42-44).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn et al. (USP: 6,281,568 hereinafter referred to as "Glenn") in view of Hung et al. (USP: 6,476,469 hereinafter referred to as "Hung"), Applicant's submitted prior arts (ASPPs) further in view of Nishikawa (USP: 5,654,585).

Glenn and Hung disclose the claimed limitations except for the leadframe wherein each of the inner support bars includes a downset. Nishikawa teaches in Figs. 10 and 13A the lead frame comprises a die pad portion (11) supported by a plurality of suspension leads (12) including a downset. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form the lead frame comprises a die pad portion supported by a plurality of suspension leads including a downset, as taught by Nishikawa to arrive the claimed limitation in order to improve manufacturing yield (col. 7, line 5-10).

Allowable Subject Matter

Claims **14-20** are allowed. The following is a statement of reason for the indication of allowable subject matter:

Claims **14-20** are considered allowable since the prior art made of record and considered pertinent to the application's disclosure does not teach or suggest the claimed limitations. Glenn, Hung and Nishikawa, taken alone or in combination, fail to teach the claimed limitations a semiconductor package comprises a die pad including a plurality of peripheral frame segments which each define opposed top and bottom surfaces and collectively define a central opening; a plurality of support feet attached to at least some of the frame segments of the die pad, the support feet being disposed within the central opening and extending downwardly relative to the bottom surfaces of the frame segments as recited in independent claim **14**.

Conclusion

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Huynh, (571) 272-1781. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The Fax number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the -status of this application or proceeding should be directed to the receptionist whose phone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ah

Andy Huynh

10/06/04

Patent Examiner